1. An improved swim fin comprising:

(a) a foot attachment portion;

(b) a blade member secured to said foot attachment portion and forming a substantially forward extension of said foot attachment portion, said blade member having a blade root portion adjacent said foot attachment portion and a blade free end portion remote from said blade root portion, said blade member having opposing surfaces and outer side edges;

(c) at least one substantially flexible elongated load bearing rib member secured to said blade member, said rib member having a rib root portion adjacent said foot attachment portion and a rib free end portion remote from said rib root portion and said foot attachment portion, said rib having a predetermined length between said rib root portion and said rib free end portion, said rib having a longitudinal midpoint, said rib member having a first half portion located between said root portion and said midpoint, said rib having a second half portion located substantially between said midpoint and said rib free end, said rib having a flexible rib region adjacent said rib root portion and within said first half portion, said flexible rib region being made with an extensible load bearing material, said extensible load bearing material is arranged to provide a major portion of the structural support of said blade member relative to said foot portion as relatively light load conditions are exerted on said blade member such as created during a light kicking stroke used by a swimmer to achieve a relatively slow to moderate swimming speed;

(d) said flexible rib region having predetermined amount of flexibility arranged to allow a predetermined light kick deflection angle of at least 10 degrees, said flexible rib region taking on a corresponding light kick bending radius;

(e) said flexible rib region having a sufficiently tall vertical rib dimension relative to said light kick bending radius to permit a tension surface portion of said extensible load bearing material to experience a predetermined light kick elongation range that is at least 3% during said light kick

deflection, and said vertical dimension is sufficient to permit a compression surface portion of said load bearing material to experience a predetermined light kick compression range that is at least 1% during said light kick deflection;

(f) said flexibility of said flexible rib region is arranged to permit a significantly large amount of said light kick deflection to occur within said first half portion of said rib;

(g) said flexible rib region having a sufficiently large enough cross section to substantially prevent said flexible rib region from buckling excessively during said light kick deflection; and

(h) said extensible load bearing material is sufficiently extensible and compressible to permit said flexible rib region to experience said light kick elongation range and said light kick compression range under said light load conditions.

2. The swim fin of Claim 1 wherein said flexible rib region is a region of reduced cross section.

3. The swim fin of Claim 1 wherein said flexible rib region is a region of reduced transverse dimension.

4. The swim fin of Claim 1 wherein said flexible rib region is a region of reduced vertical thickness.

5. The swim fin of Claim 1 wherein said deflection is not less than 15 degrees.

6. The swim fin of Claim 1 wherein said deflection is not less than 20 degrees.

7. The swim fin of Claim 1 wherein said deflection is not less than 30 degrees.

8. The swim fin of Claim 1 wherein said deflection is not less than 20 degrees and not substantially greater than 50 degrees.

9. The swim fin of Claim 1 wherein said deflection is not less than 30 degrees and not substantially greater than 50 degrees.

10. The swim fin of Claim 1 wherein said elongation range is not less than 7%.

11. The swim fin of Claim 1 wherein said elongation range is not less than 10%.

12. The swim fin of Claim 1 wherein said elongation range is not less than 15%.

13. The swim fin of Claim 1 wherein said elongation range is not less than 20%.

14. The swim fin of Claim 1 wherein said elongation range is not less than 30%.

15. The swim fin of Claim 1 wherein said compression range is not less than 2%.

16. The swim fin of Claim 1 wherein said compression range is not less than 5%.

17. The swim fin of Claim 1 wherein said compression range is not less than 7%.

18. The swim fin of Claim 1 wherein said compression range is not less than 10%.

19. The swim fin of Claim 1 wherein said flexible rib region is formed by at least one notch-like cutout within said rib.

20. The swim fin of Claim 1 wherein said flexible rib region is formed by a tension surface cutout along said tension surface and a compression surface cutout along said compression surface.

21. The swim fin of Claim 20 wherein said flexible rib region has a neutral bending surface and said flexible rib region is arranged to enable said neutral bending surface to shift

toward said compression surface in an amount sufficient to create a significant increase in bending resistance within said flexible rib region when said light kick deflection angle is exceeded, said increase in bending resistance sufficient to prevent said compression surface notch from closing during an increase in load created during a hard kicking stroke.

22. The swim fin of Claim 21 wherein said light kick deflection is not less than 15 degrees.

23. The swim fin of Claim 21 wherein said light kick deflection is not less than 20 degrees.

24. The swim fin of Claim 21 wherein said light kick deflection is not less than 30 degrees and not substantially greater than 50 degrees.

25. The swim fin of Claim 21 wherein said elongation range is not less than 5%.

26. The swim fin of Claim 21 wherein said elongation range is not less than 10%.

27. The swim fin of Claim 21 wherein said elongation range is not less than 15%.

28. The swim fin of Claim 1 wherein said region of increased flexibility is made with a relatively flexible injection molded thermoplastic material secured to said swim fin with thermal-chemical adhesion.

29. The swim fin of Claim 1 wherein said rib is arranged to have sufficient flexibility along said predetermined length to permit said rib to form a substantially S-shaped wave along said predetermined length during an inversion portion of a reciprocating kicking stroke cycle.

30. The swim fin of Claim 21 wherein said rib is arranged to have sufficient flexibility along said predetermined length to permit said rib to form a substantially S-shaped

wave along said predetermined length during an inversion portion of a reciprocating kicking stroke cycle.

31. A swim fin, comprising:

(a) a foot attachment member;

(b) a paddle-type blade member forming a forward extension of said foot attachment member, said paddle-type blade member having outer side edges, an attacking surface, a lee surface, a root portion adjacent said soot attachment member and a free end portion spaced from said foot attachment member and said root portion, said paddle-type blade member having a predetermined longitudinal dimension between said root portion and said free end portion, a longitudinal midpoint between said root portion and said free end portion, a first half portion between said root portion and said midpoint, and a second half portion between said midpoint and said free end portion;

(c) two elongated rib-like members secured to said paddle-type blade member adjacent said outer side edges, said swim fin having a region of increased flexibility adjacent said root portion that is arranged to permit a majority of said paddle-type blade member existing between said region of increased flexibility and said free end portion to pivot around a transverse axis to a reduced lengthwise angle of attack of at least 15 degrees during a relatively light kicking stroke used to reach a relatively slow to moderate swimming speed;

(d) said paddle-type blade member forming a substantially continuous transverse connection between said rib-like members, said paddle-type blade member having a predetermined transverse paddle blade dimension existing between said rib-like members, said paddle-type blade member being arranged to experience a predetermined amount of bowing between said rib-like members that originates from an unbowed orientation during rest and terminates at a bowed orientation during use to form a substantially lengthwise scoop-like channel along said attacking surface, the distance between said unbowed orientation and said bowed orientation defining a predetermined scoop depth within said scoop-like channel, said predetermined scoop depth being sufficiently deep along a significant portion of said predetermined length of said paddle-type blade member to cause said lee surface to have a substantially convex curved flow path along a significant portion of said predetermined longitudinal dimension of said paddle-type blade member.

32. The swim fin of Claim 31 wherein said region of increased flexibility is located within said first half portion of said paddle-type blade member.

33. The swim fin of Claim 31 wherein said region of increased flexibility is a region having a reduced cross section.

34. The swim fin of Claim 31 wherein said region of increased flexibility is a region having a reduced vertical dimension.

35. The swim fin of Claim 31 wherein said region of increased flexibility is a region having a reduced transverse dimension.

36. The swim fin of Claim 31 wherein said region of increased flexibility is a region selected from the group consisting of a region having a reduced rib dimension, and a region having no rib dimension.

37. The swim fin of Claim 31 wherein said paddle-type blade member has a three quarter blade length position existing within said second half portion between said midpoint and said free end portion, and said predetermined depth of scoop being arranged to be at least 5% of said predetermined transverse blade dimension at said three quarter blade length position.

38. The swim fin of Claim 37 wherein said predetermined scoop depth is not less than 10% of said predetermined transverse blade dimension at said three quarter blade length position.

39. The swim fin of Claim 37 wherein said predetermined scoop depth is not less than 15% of said predetermined transverse blade dimension at said three quarter blade length position.

40. The swim fin of Claim 37 wherein said predetermined scoop depth is not less than 20% of said predetermined transverse blade dimension at said three quarter blade length position.

41. The swim fin of Claim 37 wherein said predetermined scoop depth is not less than 40% of said predetermined transverse blade dimension at said three quarter blade length position.

42. The swim fin of Claim 37 wherein said predetermined scoop depth is sufficiently deep to significantly reduce the tendency for water to spill around the sides of said paddle-type blade member at said three quarter blade length position.

43. The swim fin of Claim 37 wherein said predetermined scoop depth is sufficiently deep to significantly at said three quarter blade length position to significantly improve the efficiency of said swim fin.

44. The swim fin of Claim 37 wherein said reduced lengthwise angle of attack is not less than 20 degrees.

45. The swim fin of Claim 38 wherein said reduced lengthwise angle of attack is not less than 20 degrees.

46. The swim fin of Claim 37 wherein said reduced lengthwise angle of attack is not less than 30 degrees on at least one kicking stroke.

47. The swim fin of Claim 31 wherein said reduced lengthwise angle of attack is not less than 20 degrees.

48. The swim fin of Claim 31 wherein said reduced lengthwise angle of attack is not less than 30 degrees on at least one kicking stroke.

49. The swim fin of Claim 47 wherein said paddle-type blade member has a three quarter blade length position existing between said midpoint and said free end portion, and said predetermined scoop depth being arranged to be at least 5% of said predetermined transverse blade dimension at said three quarter blade length position.

50. The swim fin of Claim 49 wherein said predetermined scoop depth is not less than 10% of said predetermined transverse blade dimension at said three quarter blade length position.

51. The swim fin of Claim 49 wherein said predetermined scoop depth is not less than 15% of said predetermined transverse blade dimension at said three quarter blade length position.

52. The swim fin of Claim 49 wherein said predetermined scoop depth is not less than 20% of said predetermined transverse blade dimension at said three quarter blade length position.

53. The swim fin of Claim 31 wherein said region of increased flexibility is made with a relatively flexible thermoplastic material secured to said swim fin with thermal-chemical adhesion.

54. The swim fin of Claim 50 wherein said paddle-type blade member is arranged to form a substantially S-shaped wave along said predetermined longitudinal dimension during a inversion phase of a reciprocating kicking stroke cycle.

55. The swim fin of Claim 31 wherein said paddle-type blade member is arranged to form a substantially S-shaped wave along said predetermined longitudinal dimension during a inversion phase of a reciprocating kicking stroke cycle.

56. A method for improving the performance of a swim fin, comprising:

(a) providing a foot attachment member;

(b) providing a paddle-type blade member secured to said foot attachment member and forming a forward extension of said foot attachment member, said paddle-type blade member having outer side edges, an attacking surface and a lee surface, a root portion adjacent said soot attachment member and a free end portion spaced from said foot attachment member and said root portion, said paddle-type blade member forming a substantially continuous transverse connection between said outer side edges, said paddle-type blade member having a predetermined transverse dimension existing

between said outer side edges;

(c) providing said paddle-type blade member with a pivotal hinge-like region that is arranged to permit a majority of said paddle-type blade member to pivot around a transverse axis to a lengthwise reduced angle of attack of at least 10 degrees during a relatively light kicking stroke used to achieve a relatively slow to moderate swimming speed, said paddle-type blade member having a predetermined longitudinal dimension between said pivotal hinge-like region and said free end portion, a longitudinal midpoint between said root portion and said free end portion, a first half portion between said root portion and said longitudinal midpoint, a second half portion between said longitudinal midpoint and said free end portion, and a three quarter blade position within said second half portion between said longitudinal midpoint and said free end portion, said pivotal hinge-like region being located within said first half portion of said paddle-type blade member;

(d) arranging said paddle-type blade member to experience a predetermined amount of bowing between said outer side edges that originates from an unbowed orientation during rest and terminates at a bowed orientation during use to form a substantially lengthwise scoop-like channel along said attacking surface, said scoop-like channel having a predetermined depth of scoop defined by the distance between said unbowed orientation and said bowed orientation, said predetermined scoop depth being at least 5% of said predetermined transverse dimension at said three quarter blade position of said paddle-type blade member.

57. The method of Claim 56 wherein said predetermined scoop depth is not less than 5% of said predetermined transverse dimension at said longitudinal midpoint of said paddle-type blade member.

58. The method of Claim 56 wherein said predetermined scoop depth is not less than 10% of said predetermined transverse dimension at said three quarter blade position of said paddle-type blade member.

59. The method of Claim 56 wherein said predetermined scoop depth is not less than

15% of said predetermined transverse dimension at said three quarter blade position of said paddle-type blade member.

60. The method of Claim 56 wherein said predetermined scoop depth is not less than 20% of said predetermined transverse dimension at said three quarter blade position of said paddle-type blade member.

61. The method of Claim 56 wherein said predetermined scoop depth is not less than 30% of said predetermined transverse dimension at said three quarter blade position of said paddle-type blade member.

62. The method of Claim 56 wherein said lengthwise reduced angle of attack is not less than 15 degrees during at least one kicking stroke.

63. The method of Claim 56 wherein said lengthwise reduced angle of attack is not less than 20 degrees during at least one kicking stroke.

64. The method of Claim 56 wherein said swim fin is provided with a stopping device arranged to prevent said paddle-type blade member from pivoting beyond a predetermined maximum reduced angle of attack during a relatively hard kicking stroke.

65. The method of Claim 64 wherein said stopping device includes providing said hinge-like region with flexible load bearing material arranged to exhibit an exponential increase in bending resistance as said lengthwise reduced angle of attack is exceeded during a hard kicking stroke.

66. The method of Claim 63 wherein said flexible load bearing material has a tension surface that experiences an elongation range of at least 5% during said hard kicking stroke.

67. The method of Claim 63 wherein said flexible load bearing material has a tension surface that experiences an elongation range of at least 7% during said hard kicking stroke.

68. The method of Claim 63 wherein said flexible load bearing material has a tension surface that experiences an elongation range of at least 10% during said hard kicking stroke.

69. The method of Claim 62 wherein said predetermined scoop depth is not less than 10% of said predetermined transverse dimension at said three quarter blade position of said paddle-type blade member.

70. The method of Claim 63 wherein said predetermined scoop depth is not less than 10% of said predetermined transverse dimension at said three quarter blade position of said paddle-type blade member.

71. The method of Claim 63 wherein said predetermined scoop depth is not less than 15% of said predetermined transverse dimension at said three quarter blade position of said paddle-type blade member.

72. The method of Claim 63 wherein said predetermined scoop depth is not less than 20% of said predetermined transverse dimension at said three quarter blade position of said paddle-type blade member.